

## SECTION III - LEGAL QUALIFICATIONS

NOTE: Applicants for new stations only:

1. Applicant is (check one of the following):

- |                                     |  |   |
|-------------------------------------|--|---|
| <input type="checkbox"/> Individual | <input type="checkbox"/> General Partnership | <input checked="" type="checkbox"/> Corporation     |
| <input type="checkbox"/> Other      | <input type="checkbox"/> Limited Partnership | <input type="checkbox"/> Unincorporated Association |

(a) If the applicant is a legal entity other than an individual, partnership, corporation or unincorporated association, describe in an Exhibit the nature of the applicant.

Exhibit No.  
N.A.

(b) For LPTV and TV translator applicants only:

If the applicant is an individual, submit as an Exhibit the applicant's name, address and telephone number (including area code).

Exhibit No.  
N.A.

If the applicant is a partnership, whether general or limited, submitted as an Exhibit the names, addresses, and telephone numbers (including area code) of all general and limited partners (including silent partners), and the nature and percentage of the ownership interest of each partner.

Exhibit No.  
N.A.

If the applicant is a corporation or an unincorporated association, submit as an Exhibit the names, addresses and telephone numbers (including area code) of all officers, directors and other members of the governing board of the corporation or association and the nature and the percentage of their ownership interests in the applicant (including stockholders with interests of 1% or greater).

Exhibit No.  
1

2. For LPTV and TV translator applicants only, submit as an Exhibit a list of all other new applications filed during the same window period as this application in which the applicant or any principal of the applicant has any interest. Include the percentage of that interest for each listed application, as well as the other applicant's name (if different) and the channel number and location of the proposed station.

Exhibit No.  
2

NOTE: No more than five (5) applications for new low power TV or TV translator stations may be filed during a single window period by any applicant, or by any individual or entity having an interest of 1% or more in applications filed in the same window period. This limit does not apply to minor or major change applications or to TV booster applications.

### CITIZENSHIP AND OTHER STATUTORY REQUIREMENTS

3. (a) Is the applicant in compliance with the provisions of Section 310 of the Communications Act of 1934, as amended, relating to interests of aliens and foreign governments?

☒ Yes ☐ No

(b) Will any funds, credit, or other financial assistance for the construction, purchase or operation of the station(s) be provided by aliens, foreign entities, domestic entities controlled by aliens, or their agents?

☐ Yes ☒ No

If Yes, provide particulars as an Exhibit.

Exhibit No.

4. (a) Has an adverse finding been made, or an adverse final action taken by any court or administrative body as to the applicant or any party to this application in a civil or criminal proceeding brought under the provisions of any law related to the following: any felony; broadcast-related antitrust or unfair competition; criminal fraud or fraud before another governmental unit; or discrimination?

☐ Yes ☒ No

(b) Is there now pending in any court or administrative body any proceeding involving any of the matters referred to in 4(a)?

☐ Yes ☒ No

If the answer to 4(a) or 4(b) is Yes, attach as an Exhibit a full disclosure concerning the persons and matters involved, including an identification of the court or administrative body and the proceeding (by dates and file numbers), a statement of the facts upon which the proceeding was based or the nature of the offense alleged or committed, and a description of the current status or disposition of the matter.

Exhibit No.

SECTION III (Page 2)

5. Has the applicant or any other party to this application had any interest in:

(a) a broadcast application which has been dismissed with prejudice by the Commission?

☐ Yes ☒ No

(b) a broadcast application which has been denied by the Commission?

☐ Yes ☒ No

(c) a broadcast station, the license for which has been revoked?

☐ Yes ☒ No

(d) a broadcast application in any Commission proceeding which left unresolved character issues against the applicant?

☒ Yes ☐ No

If the answer to any of the questions in 5 is Yes, state in an Exhibit the following:

Exhibit No.  
3

(i) Name of party having interest;

(ii) Nature of interest or connection, giving dates;

(iii) Call letters of stations or file number of application or docket number;

(iv) Location.

MULTIPLE APPLICATIONS

6. The applicant certifies that there is no other application pending that would be directly mutually exclusive with this application in which this applicant has an interest of one percent or more or in which any party to this application is an officer, director, or has an interest of one percent or more, direct or indirect.

☒ Yes ☐ No

If No, this application cannot be accepted for filing.

REAL PARTY IN INTEREST

7. The applicant certifies that no agreement, either explicit or implicit, has been entered into for the purposes of transferring or assigning to another party, any station construction permit or license or interest therein that is awarded as a result of a random selection or lottery.

☒ Yes ☐ No

If No, this application cannot be accepted for filing.

SECTION IV - PROGRAM SERVICE STATEMENT

NOTE: For Low Power Television applicants only:

Low Power Television stations must offer a broadcast program service; a non-program broadcast service will not be permitted. Therefore, briefly describe below, in narrative form, your planned programming service.

The applicant proposes to broadcast community program service, including entertainment, feature, informational, movies, syndicated and sports programming.

SECTION V - (Page 3)

REMINDER: Do not complete the following without reading carefully the definitions and other information set out in the foregoing pages.

CERTIFICATION OF PREFERENCES

MINORITY

1. The applicant certifies that it is entitled to and seeks to claim minority preference.

☐ Yes ☒ No

If yes, complete the following:

Name	Address	Percentage Interest in the applicant	Minority Group
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DIVERSIFICATION PREFERENCE

2. The applicant certifies that it and/or its owners have no interest, in the aggregate, exceeding 50 percent in any media of mass communications.

☐ Yes ☒ No

If Yes, DO NOT respond to questions 3 and 4.

3. The applicant certifies that it and/or its owners have no interest, in the aggregate, exceeding 50 percent in more than three mass communications media facilities.

☐ Yes ☒ No

4. The applicant certifies that it and/or its owners have no interest, in the aggregate, exceeding 50 percent in a media of mass communications in the same area to be served by the proposed station.

☒ Yes ☐ No

## SECTION VI - EQUAL EMPLOYMENT OPPORTUNITY PROGRAM

1. For Low Power TV applicants, will this station employ on a full-time basis five or more persons?

☐ Yes ☒ No

If Yes, the applicant must include an EEO program called for in the separate Broadcast Equal Employment Opportunity Report (FCC Form 398-A).

## SECTION VII - CERTIFICATIONS

1. For new station and major change applicants only, the applicant certifies that it has or will comply with the public notice requirement of 47 C.F.R. Section 73.3580(g).

☒ Yes ☐ No

2. For applicants proposing translator rebroadcasts who are not the licensee of the primary station, the applicant certifies that written authority has been obtained from the licensee of the station whose programs are to be retransmitted.

☐ Yes ☐ No

N.A.

Primary station proposed to be rebroadcast:

Call Sign	City	State	Channel No.

3. The applicant certifies that it has contacted an authorized spokesperson for the owner of the rights to the proposed transmitter site and has obtained reasonable assurance that the site will be available for its use if this application is granted. Related company of Applicant owns site.

☒ Yes ☐ No

That person can be contacted at the following address and telephone number:

Name David A. Gardner		Mailing Address or Identification 1416 Trindle Road	
City Carlisle	State PA	ZIP Code 17013	Telephone No. (include area code) (717) 245-0040

The APPLICANT hereby waives any claim to the use of any particular frequency as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. (See Section 304 of the Communications Act of 1934, as amended.)

The APPLICANT acknowledges that all the statements made in this application and attached exhibits are considered material representations, and that all exhibits are a material part hereof and incorporated herein.

The APPLICANT represents that this application is not filed for the purpose of impeding, obstructing, or delaying determination on any other application with which it may be in conflict.

In accordance with 47 C.F.R. Section 1.65, the APPLICANT has a continuing obligation to advise the Commission, through amendments, or any substantial and significant changes in information furnished.

**WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND IMPRISONMENT.  
U.S. CODE, TITLE 18, SECTION 1001.**

I certify that the statements in this application are true, complete and correct to the best of my knowledge and belief, and are made in good faith.

Name of Applicant Raystay Company	Signature <i>David A. Gardner V.P.</i>
Title Vice President	Date David A. Gardner March 7, 1989

**EXHIBIT 1**

The officers, directors, and ownership of voting stock in Raystay Company is as follows:

<u>Name</u>	<u>Officers</u>	<u>Percentage of Voting Stock</u>
George F. Gardner	President, Treasurer and Director	50.06%
Estate of Marian B. Gardner, George F. Gardner and David A. Gardner Co-Executors	---	25.55%
David A. Gardner R.D. 1 Landisburg, PA 17040	Vice-President, Secretary, and Director	8.13%
Michael C. Gardner 580 Boxwood Lane Carlisle, PA 17013	---	8.13%
David A. Gardner Trustee For Jon C. Gardner c/o Box 38 Carlisle, PA 17013		8.13%

**EXHIBIT 2**

Raystay Company is filing the following five low power television applications in the window period ending March 10, 1989.

<b><u>Location of Proposed Station</u></b>	<b><u>Channel Number</u></b>
Red Lion, PA	56
Lebanon, PA	55
Lebanon, PA	38
Lancaster, PA	23
Lancaster, PA	31

EXHIBIT 3

Mr. George F. Gardner, President, Director and principal stockholder in Raystay company, is the President, Director, and sole stockholder in Adwave Company (Adwave), applicant for construction permit for a new FM broadcast station at Fort Lauderdale, Florida (MM Docket No. 84-1113, File No. BPH-830510AL). In a Partial Initial Decision of Administrative Law Judge Joseph Stirmer (FCC 870-20) released June 4, 1987, a misrepresentation/lack of candor issue was decided adversely to Adwave. The Commission had previously directed that all appeals in such cases involving applicants seeking licenses held by RKO General, Inc., be stayed, but has recently set March 16, 1989, as the date for filing of exceptions to such Partial Initial Decisions. Accordingly, Adwave will timely file with the Review Board its appeal of the Partial Initial Decision.

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R. L. HOOVER CONSULTING TELECOMMUNICATIONS ENGINEER

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ENGINEERING STATEMENT IN SUPPORT OF AN  
APPLICATION FOR A  
CONSTRUCTION PERMIT FOR A  
NEW LOW POWER TELEVISION STATION IN  
RED LION, PENNSYLVANIA

On Behalf of  
RAYSTAY COMPANY

EE-1

February 21st, 1989



**ENGINEERING STATEMENT IN SUPPORT OF**  
**AN APPLICATION FOR A**  
**CONSTRUCTION PERMIT FOR A**  
**NEW LOW POWER TELEVISION STATION IN**  
**RED LION PENNSYLVANIA**

On behalf of  
**RAYSTAY COMPANY**

**EE-1**

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ENGINEERING STATEMENT IN SUPPORT OF AN  
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EE-1

DECLARATION

Robert Lloyd Hoover declares and states that he is a Registered Professional Engineer in the State of Maryland and seven other states. He further states that he has been in broadcast engineering since 1948 to date.

He states that he has been retained by Raystay Company for the purpose of preparing an application for a Construction Permit for a new Low Power Television Station on Channel 56 in Red Lion, Pennsylvania.

He further states that the calculations, exhibits and measurements reported herein were made by him personally or under his supervision and all facts contained herein are true of his own knowledge, except where stated to be on information or belief, and as to those facts, he believes them to be true. I declare under penalty of perjury that the foregoing is true and correct.

ROBERT LLOYD HOOVER  
LICENSE NO. 11579  
Robert Lloyd Hoover, PE  
Maryland No. 11579  
REGISTERED  
Date: - Jul 21st, 1987

# SECTION 11 - ENGINEERING DATA AND ANTENNA AND SITE INFORMATION

## 1. Facilities requested:

Output Channel No.	Transmitter Rated Power Output	Proposed Community(ies) to be served	
56	1.0 kilowatts	City Red Lion	State PA

Frequency Offset (check one)

☐ No offset ☐ Zero offset ☒ Plus offset ☐ Minus offset

Translator Input Channel No.

n/a


## 2. Proposed transmitting antenna location:

City Red Lion	State PA	County York
Address or other description of location: Approximately 1.2 km (0.75 mi) northwest of Red Lion on Rt 24 & immediately north of Rt 24.		Geographical coordinates of transmitting antenna to nearest second North Latitude 39° 54' 42" West Longitude 76° 37' 15"

Attach as an Exhibit a map or maps (preferably topographic, if obtainable, such as Geological Survey quadrangles) of the area of the proposed transmitting antenna location shown drawn thereon the following data:

Exhibit No. EE-1

- Scale of kilometers
- Proposed transmitting antenna location accurately plotted.

3. Transmitter:	Make Acrodyne	Type No. TLU/1KACT		Output Power P 0.567 kilowatts
4. Transmission line:	Andrew	LDF7-50A	Length 140 ft	Rated efficiency E for length given (decimal fraction) 0.8037

5. Transmitting antenna ☒ Directional, "off-the-shelf" ☐ Directional Composite (Multiple Antennas) ☐ Non-Directional

Manufacturer Bogner	Model B16UC	Description <sup>1</sup> Slot antenna
Orientation of main lobe <sup>2</sup> N-290-E	Overall antenna structure height above ground <sup>3</sup> 38.4 meters	Elevation of Site <sup>4</sup> 304.8 meters
Power gain G (multiplier) in the horizontal lobe of maximum radiation relative to a halfwave dipole <sup>5</sup> $G_{\text{horz}} = 79.0 \times (0.5)^2 = 19.75$ -2 deg beam tilt		

Effective radiated power (ERP) (ERP=P X E X G) 9.0 kilowatts

Height of antenna radiation center above ground 34.1 meters

Height of antenna radiation center above mean sea level 112 ft

338.9 meters<sup>6</sup> 1112 ft

<sup>1</sup> Give basic type using general descriptive terms such as half-wave dipole, "bow-tie" with screen, corner reflector, 10 element Yagi, 4 element in-phase array, two stacked 5 element Yagis, etc.

<sup>2</sup> For directional antennas in the horizontal plane show the direction of the main radiation lobe(s) in degrees with respect to true north in a 360 degree horizontal azimuth, numbered clockwise, with true north as zero azimuth.

<sup>3</sup> Show overall height above ground in meters to topmost portion of structure, including highest top mounted antenna and beacon if any.

<sup>4</sup> Show the ground elevation above mean sea level in meters at the base of the transmitting antenna supporting structure.

<sup>5</sup> Give the actual power gain toward the radio horizon.

<sup>6</sup> This is equal to the sum of the site elevation and the height of the antenna radiation center above ground.

6. Attach as an Exhibit a vertical plan sketch for the proposed total antenna structure, including supporting structure, giving overall height of structure in meters above ground, including lighting beacon (if any).

Exhibit No.  
EE-1

7. Will the proposed antenna supporting structure be shared with an AM radio station?

☐ Yes ☒ No

If yes, list the call sign of that station.

8. Attach as an Exhibit a polar diagram of the radiation pattern (relative field) in the horizontal plane of the transmitting antenna showing clearly the correct relationship between the major lobe or lobes and the minor lobes of radiation and a tabulation of the pattern at every ten degrees and all maxima and minima. Applicants proposing use of multiple transmitting antennas shall submit a composite radiation pattern. If a non-directional transmitting antenna will be employed, i.e., an antenna with an approximately circular radiation pattern, check here ☐ and omit polar diagram and tabulation. If the antenna manufacturer and model number are on the Commission's list of common "off-the-shelf" directional antennas, check here ☒ and omit polar diagram and tabulation. **Provided for reference**

Exhibit No.  
EE-1

9. Has FAA been notified of proposed construction?

☒ Yes ☐ No

If Yes, give date and office where notice was filed:

Feb 21st, 89, Eastern Regional  
Office

10. Environmental Statement (See 47 C.F.R. Section 1.1301 et seq)

Would a Commission grant of this application come within 47 C.F.R. 1.1307, such that it may have a significant environmental impact, including exposure to workers or the general public to harmful nonionizing radiation levels?

☐ Yes ☒ No

If you answer Yes, submit as an Exhibit an Environmental Assessment as required by Section 1.1311. If no, explain briefly why not **See Exhibit EE-1**

Exhibit No.  
-

11. Unattended operation:

Is unattended operation proposed?

☒ Yes ☐ No

If Yes, and this application is for authority to construct a new station or to make changes in the facilities of an authorized station which proposes unattended operation for the first time, applicant will comply with the requirements of 47 C.F.R. Section 74.734 concerning unattended operation.

☒ Yes ☐ No

12. Is type approved broadcast equipment being specified?

☒ Yes ☐ No

If No, indicate date equipment was submitted to FCC Laboratory for approval.

I certify that I represent the applicant in the capacity indicated below and that I have examined the foregoing statement of technical information and that it is true to the best of my knowledge and belief.

February 21st, 1989

Date

Signature

*Robert Lloyd Hoover*

Typed or Printed Name

**Robert Lloyd Hoover, PE**

Telephone No. (include area code)

**(301) 983-0054**

☐ Technical Director

☒ Registered Professional Engineer

☒ Consulting Engineer

☐ Chief Operator

☐ Other (specify)

ENGINEERING STATEMENT IN SUPPORT OF AN  
APPLICATION FOR A  
CONSTRUCTION PERMIT FOR A  
NEW LOW POWER TELEVISION STATION IN  
RED LION, PENNSYLVANIA  
On behalf of  
RAYSTAY COMPANY

EE-1

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I. GENERAL

This engineering statement has been prepared on behalf of Raystay Company. The purpose of this statement is to request a Construction Permit for a new Low Power Television Station on Channel 56 in Red Lion, Pennsylvania. This is one of five applications being filed by Raystay Company in Pennsylvania.

The applicant proposes to operate on Channel 56 with a directional antenna system having a maximum Effective Radiated Power of 9.0 kW in the horizontal plane. An electrical beam tilt of -2 degrees is proposed for the antenna. At this depression angle below the horizon the maximum ERP would be 36.0 kW. The applicant proposes to operate with a precise Plus Offset Carrier Frequency.

This application is not a major environmental hazard, as defined by Section 1.1305 of the Rules. The proposed operation is in compliance with the safety standards specified in Section 1.1307(b), that is, the exposure of the general public and workers to the ANSI C95.1 1982 exposure guidelines.

Answers to questions in the Form 346 are provided in the attached statement.

II. PROPOSED OPERATION

A. Proposed location

The proposed site would be approximately 0.75 miles northwest of Red Lion on Route 24 and immediately north of Route 24. The geographical co-ordinates of the proposed site are:

N 39° 54' 42" ,  
W 76° 37' 15" .

A topographic map showing the proposed site is provided in Figure 1 and a general area map of the area is shown

in Figure 2.

Inasmuch as the proposed antenna would be top mounted on a 100-ft tower, the FAA Regional Office was notified.

B. Proposed Antenna System & Supporting Structure

The applicant proposes to pole mount a Bogner type B16UC antenna on top of a 100-ft tower. The Center of Radiation would be 34.1 meters (112 feet) agl or 338.9 meters (1112 feet) amsl. A vertical plan sketch of the proposed antenna and its supporting structure is shown in Figure 3.

The applicant proposes to use a Bogner type B16UC antenna oriented at N-290-E where its main beam is also in this direction. The antenna is specified to have a -2 degree beam tilt. The vendor warrants that the Vertical Plane (Shape) Pattern for the B16UC antenna, as shown in Figure 6, holds in all azimuthal directions.

For a -2 degree beam tilt the B16UC antenna Vertical Plane (Shape or Form) Pattern has a relative field strength value of 0.5 at the horizon compared to a maximum value of unity or one at the depression angle of -2 degrees. The Antenna Power Gain in the horizontal plane is 0.25 of that at the depression angle. That is, multiplying the square of the Vertical Plane (Shape) Pattern value at the horizon times the maximum Power Gain of the Antenna in its main lobe results in a Power Gain in the horizontal plane of 19.75, viz,

$$G_{\text{at horz}} = (0.5)^2 \times 79.5 = 19.75$$

The vendor warrants that the Vertical Plane (Shape) Pattern holds in all azimuthal directions; therefore, the ERP in the horizontal plane in all azimuthal directions is equal to or less than 9.0 kW as indicated by the chart in Figure 4 or plot in Figure 5.

C. Operational Specifications

It is proposed to install an Acrodyne type TLU/1KACT LPTV transmitter that is rated to deliver 1000 watts into a 50-ohm dummy load. The transmitter is type accepted for Part 74 of the Rules. The transmitter will be specified to maintain a precise frequency offset of  $\pm 1$  kHz at a specified designation of Plus 10-kHz Carrier Offset from the standard carrier frequency on Channel 56. The Bogner LPTV type B16UC antenna with a -2 degrees beam tilt provides a power gain of 19.75 above that of a dipole (12.956 dBd) in the horizontal plane. The antenna would be oriented at N-290-E, where the main lobe would also point in this direction. A tabulation of the relative field strength in the horizontal plane is provided in

Figure 4, and a horizontal plot of these data is shown in Figure 5. The proposed transmission line would be Andrew type LDF7-50A, which has an attenuation of approximately 0.678 dB per 100 feet at the visual carrier frequency of 723.25 MHz. The efficiency for the proposed length of 140-ft length of cable is approximately 80.37 percent. To provide an Effective Rated Power of 9.0 kW in the horizontal plane relative to a dipole, the Transmitter Power Output would be 567 watts.

**D. Proposed Coverage**

The site is approximately 0.75 miles northwest of Red Lion so that the 74-dBu coverage contour will provide coverage over all of Red Lion and its immediate area.

**E. Attended Operation**

The applicant, Raystay Company, will fully comply with Section 74.734 of the Rules regarding Attended and Unattended Operation.

The applicant will employ a qualified person to be in charge of the transmission equipment. This person may be contacted in an emergency to suspend the operation of the Low Power TV Station should such action be necessary as deemed necessary by the Commission staff.

The transmitting equipment will be provided with suitable automatic control circuits that provide the function of placing the transmitter in a non-radiation condition in the absence of a baseband video and/or aural signals at the input to the transmitter. The equipment will be secured in a locked enclosure and/or structure to insure against access capability by unauthorized persons.

Observation by a person designated by the licensee will be made daily for at least a 10-minutes duration, who will provide proper measures to assure prompt correction of any condition observed regarding improper operation.

When the transmitter cannot be reached at all hours, appropriate means will be provided so that the transmitter can be turned off at will from a designated control point that is accessible at all hours and during all seasons. The on/off control for the transmitter will be adequately protected against tampering by unauthorized persons.

The proposed tower will be painted and lighted in accordance with FAA specifications. Should the overall structural height of 38.4 meters (126 feet) agl be required to be lighted, the licensee will provide for the daily observations of the operation of the required

lighting as well as those required lighting equipment inspections.

The transmitting equipment will be checked on a regular basis to insure against spurious radiations as well as to determine full compliance with the Commission's Rules.

F. Other Services in the Area

No intermodulation problems with existing Commission licensed facilities are contemplated. However, in the unlikely event that such problems may possibly occur, the applicant will correct those cases to be in accordance with the Commission's Rules.

III. ENVIRONMENTAL CONSIDERATION

No significant environmental impact would result due to the Commission granting this applicant.

A. Environmental Impact Statement

The applicant proposes to top mount its antenna on a 30.5-meter (100-ft) tower. Such construction would be not be a Major Action.

This application would not come within Section 1.1307 of the Rules. The applicant does not propose to use high intensity lighting. No environmental impact is involved since the proposed site is not in an area that would constitute an environmental impact since it is not located in any known wilderness and/or wildlife areas, historic and/or scenic areas and will not involve extensive changes to the existing terrain features. No known migratory bird or animal path would be blocked by top mounting the proposed TV antenna on a 30.5-meter (100-ft) tower.

B. National Environmental Policy Act of 1969

This application will not result in radiofrequency radiation in excess of the applicable safety standards specified in Section 1.1307(b), that is, the exposure of workers and the general public would be based upon the recent ANSI C95.1 1982 exposure guidelines.

In the UHF TV Band the ANSI standard would limit exposure to human beings to less than  $f/300 \text{ mW/cm}^2$ , where  $f$  is frequency in megahertz. For Channel 56, the ANSI Radio Frequency Protection guideline would be less than  $2.4 \text{ mW/cm}^2$ . Measurements on UHF TV antennas after prediction verify that as a least upper bound the Power Density, PD, would be

$$PD = \frac{EIRP}{4077r^2} \quad \text{mW/cm,}$$



where EIRP is the Effective Isotropic Radiated Power in watts and  $r$  is the appropriate slant distance from the antenna radiation center in meters, for example, to head height or 7 feet (2.13 meters) above ground level. For a UHF TV antenna, such as the Bogner B16UC antenna proposed for Channel 56 at Red Lion, the EIRP in the far field is roughly equal to the sum of the Visual and Aural EIRP values, which during normal programming is approximately equal to 0.4 times the visual effective radiated power plus the aural effective radiated power times 1.64, where consideration would be given to the square of the vertical plane shape or form factor for the antenna,  $f(\theta)$ , viz,

$$EIRP \sim (1.64)[(0.4)ERP_{vis} + ERP_{aur}] f^2(\theta) .$$

Setting the Power Density expression, PD, equal to  $2.4 \text{ mW/cm}^2$ , the slant distance,  $r$ , becomes,

$$r = \sqrt{\frac{(1.64)[(0.4)ERP_{vis} + ERP_{aur}]}{40 \times 2.4}} f(\theta) \text{ meters.}$$

EPA guidelines suggest a reflection co-efficient of 1.6 be adopted. Using this EPA guideline, an EPA value for  $r$  adjusted for such a reflection co-efficient would be

$$r' = 1.6 r .$$

The EPA safe slant distance from the radiation center,  $r'$ , becomes,

$$r' = 0.387 \sqrt{(0.4)ERP_{vis} + ERP_{aur}} f(\theta) \text{ feet,}$$

on Channel 56.

For a visual ERP of 36,000 watts and aural ERP of 3600 watts in the main beam at the depression angle of  $-2$  degrees the slant distance from the radiation center,  $r'$ , becomes approximately 52 feet (15.8 meters) times the far-field vertical shape factor of the antenna,

$$r' = 15.8 f(\theta) \text{ meters or } 52 f(\theta) \text{ feet .}$$

For a "worst-case" scenario where the antenna would be presumed to look straight down the tower, the vertical shape factor,  $f(\theta)$ , would become unity. Therefore, the minimum antenna height above ground level would be 52 feet in this "worst-case" scenario.

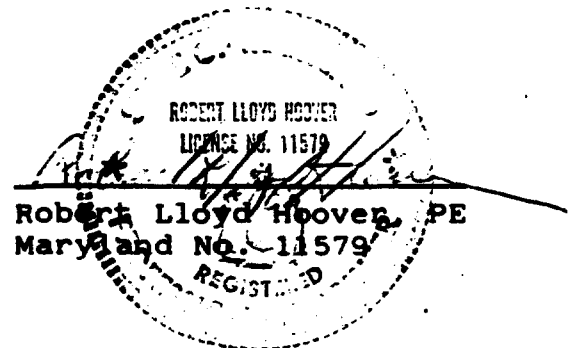
Inasmuch as the lowest element of the proposed antenna would be approximately 100 feet (30.5 meters) above ground level, it can be seen that no radiation hazard will exist on the ground below the antenna, even in the "worst-case" scenario. Below the horizon, for example,

near the base of the supporting tower, the real-world vertical shape factor will be less than unity as presumed for this "worst-case" scenario, whereby the slant distance from the radiation center,  $r'$ , would be substantially reduced to a value less than 52 feet.

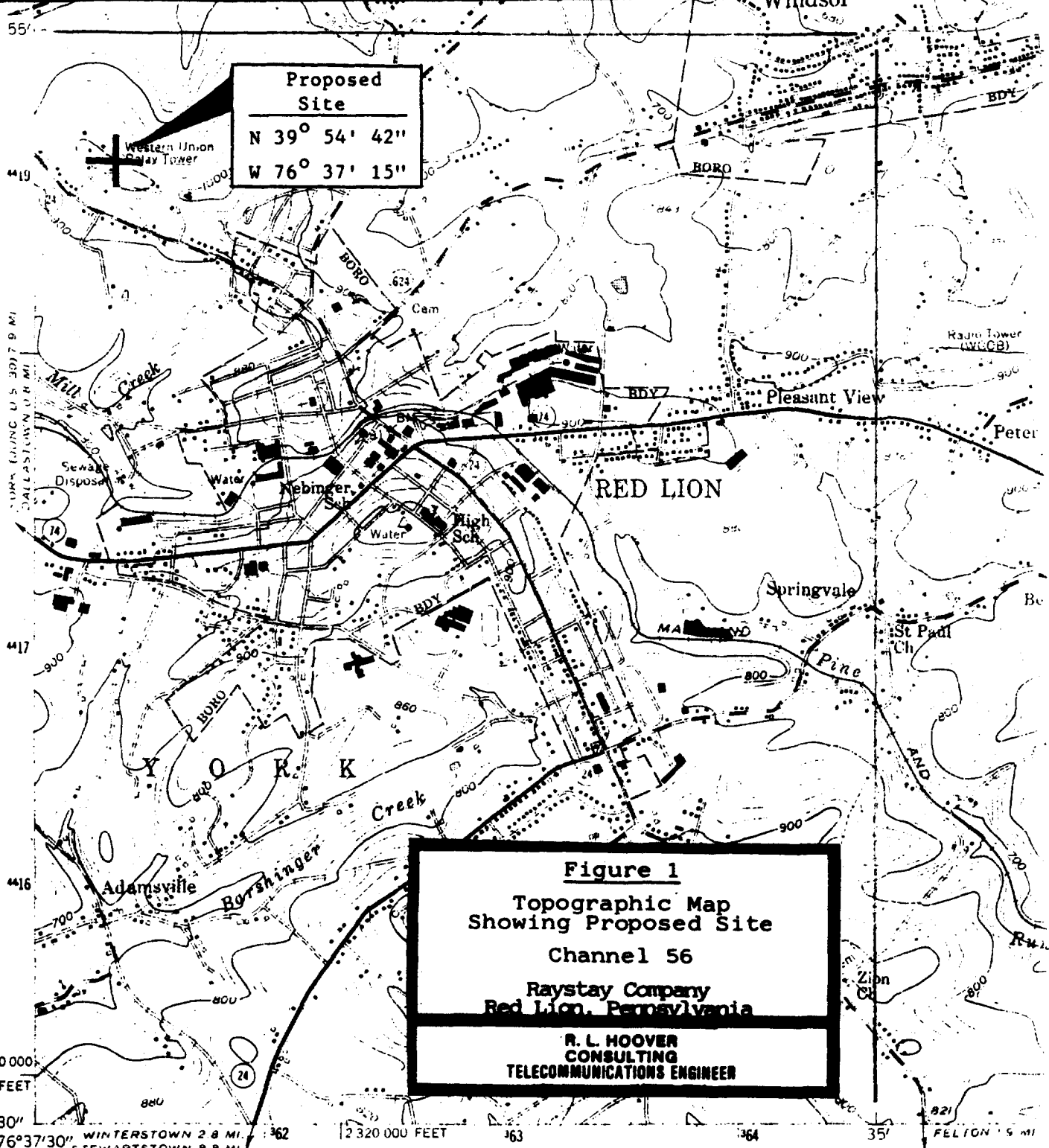
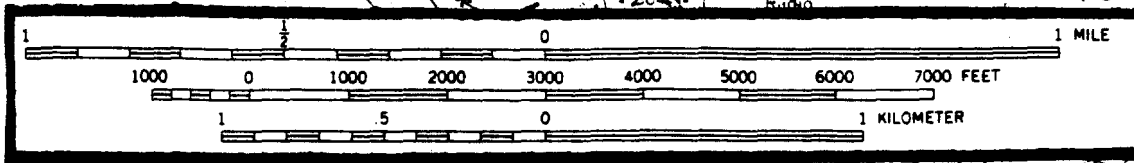
IV. SUMMARY

Raystay Company requests a Construction Permit for a new Low Power Television facility on Channel 56 with precise Plus Frequency Offset in Red Lion, Pennsylvania. The application is in full compliance with the Commission's final rules concerning Low Power Television stations.

February 21st, 1989



RED LION QUADRANGLE  
PENNSYLVANIA—YORK CO.  
7.5 MINUTE SERIES (TOPOGRAPHIC)



**Figure 1**  
**Topographic Map**  
**Showing Proposed Site**  
**Channel 56**

**Raystay Company**  
**Red Lion, Pennsylvania**

**R. L. HOOVER**  
**CONSULTING**  
**TELECOMMUNICATIONS ENGINEER**

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by photogrammetric methods. Aerial photographs taken 1952. Field check 1953

Polyconic projection. 1927 North American datum  
10,000-foot grid based on Pennsylvania coordinate system,  
south zone

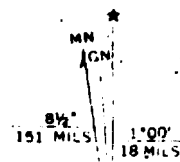
1000-meter Universal Transverse Mercator grid ticks,

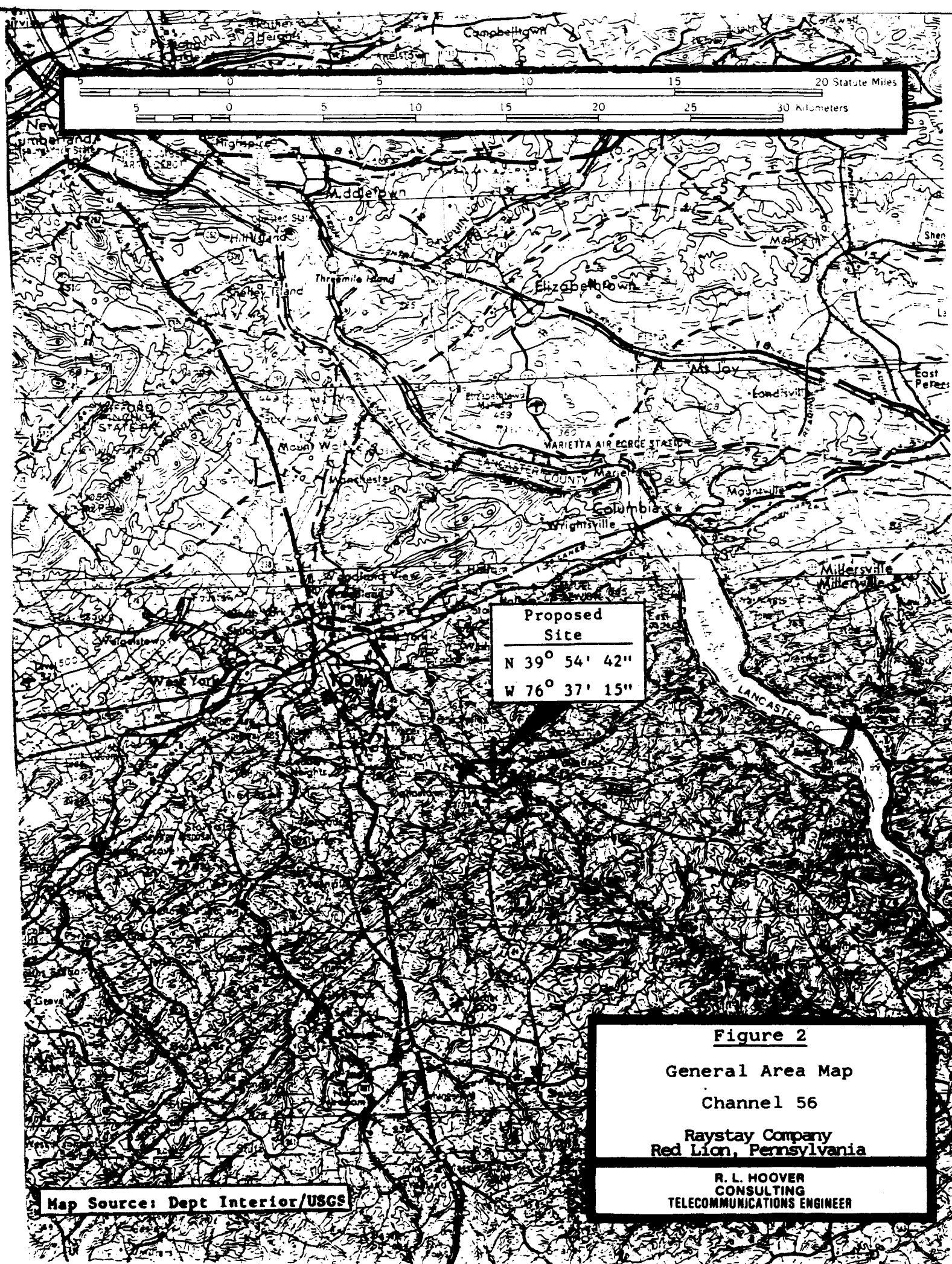
**RED LION, PA.**

**N 3952.5—W 7630/7.5**  
**1953**

**PHOTOREVISED 1968 AND 1**  
**AMS 5663 I NE—SERIES V8**

(GLEN ROCK)  
5663 I NE





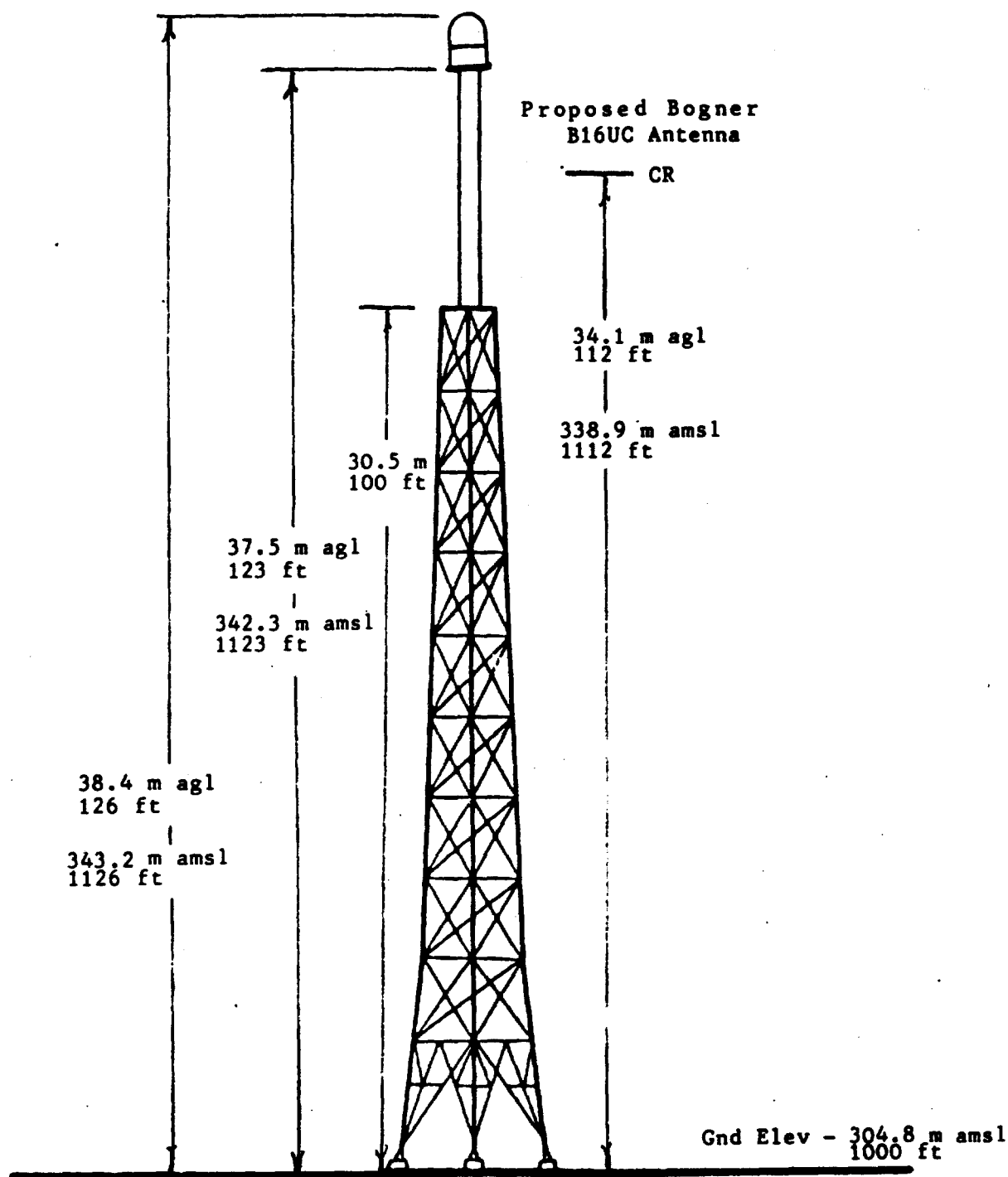
Map Source: Dept Interior/USGS

**Figure 2**

General Area Map  
Channel 56

Raystay Company  
Red Lion, Pennsylvania

R. L. HOOVER  
CONSULTING  
TELECOMMUNICATIONS ENGINEER



Proposed  
Site

N 39° 54' 42"

W 76° 37' 15"

Painted & Lighted  
in Accordance with  
FAA Specifications

Drawing not to scale

**Figure 3**

Vertical Plan Sketch  
of Supporting Structure

Channel 56

Raystay Company  
Red Lion, Pennsylvania

R. L. HOOVER  
CONSULTING  
TELECOMMUNICATIONS ENGINEER

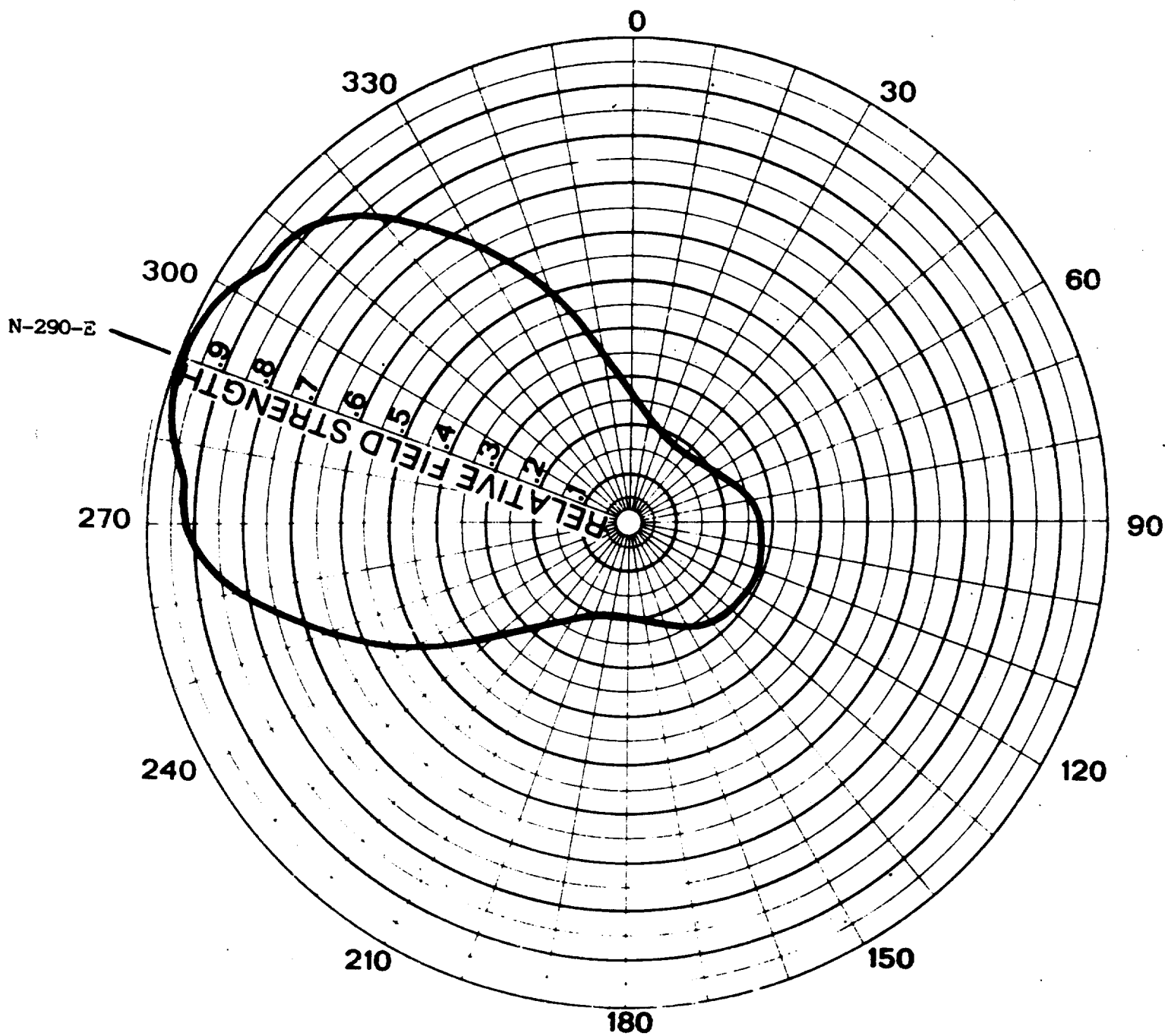
Figure 4

Tabulation of Bogner type B16UC  
Relative Field Strength in the Horizontal Plane  
from the Commission's Files

Channel 56  
Raystay Company  
Red Lion, Pennsylvania

AZIMUTH	TABULATED GAIN
-----	-----
0.00	1.000
10.00	0.970
20.00	0.920
30.00	0.835
40.00	0.675
50.00	0.525
60.00	0.375
70.00	0.260
80.00	0.230
90.00	0.200
100.00	0.190
110.00	0.190
120.00	0.200
130.00	0.220
140.00	0.240
150.00	0.270
160.00	0.280
170.00	0.285
180.00	0.290
190.00	0.285
200.00	0.280
210.00	0.270
220.00	0.240
230.00	0.220
240.00	0.200
250.00	0.190
260.00	0.190
270.00	0.200
280.00	0.230
290.00	0.280
300.00	0.375
310.00	0.525
320.00	0.675
330.00	0.835
340.00	0.920
350.00	0.970

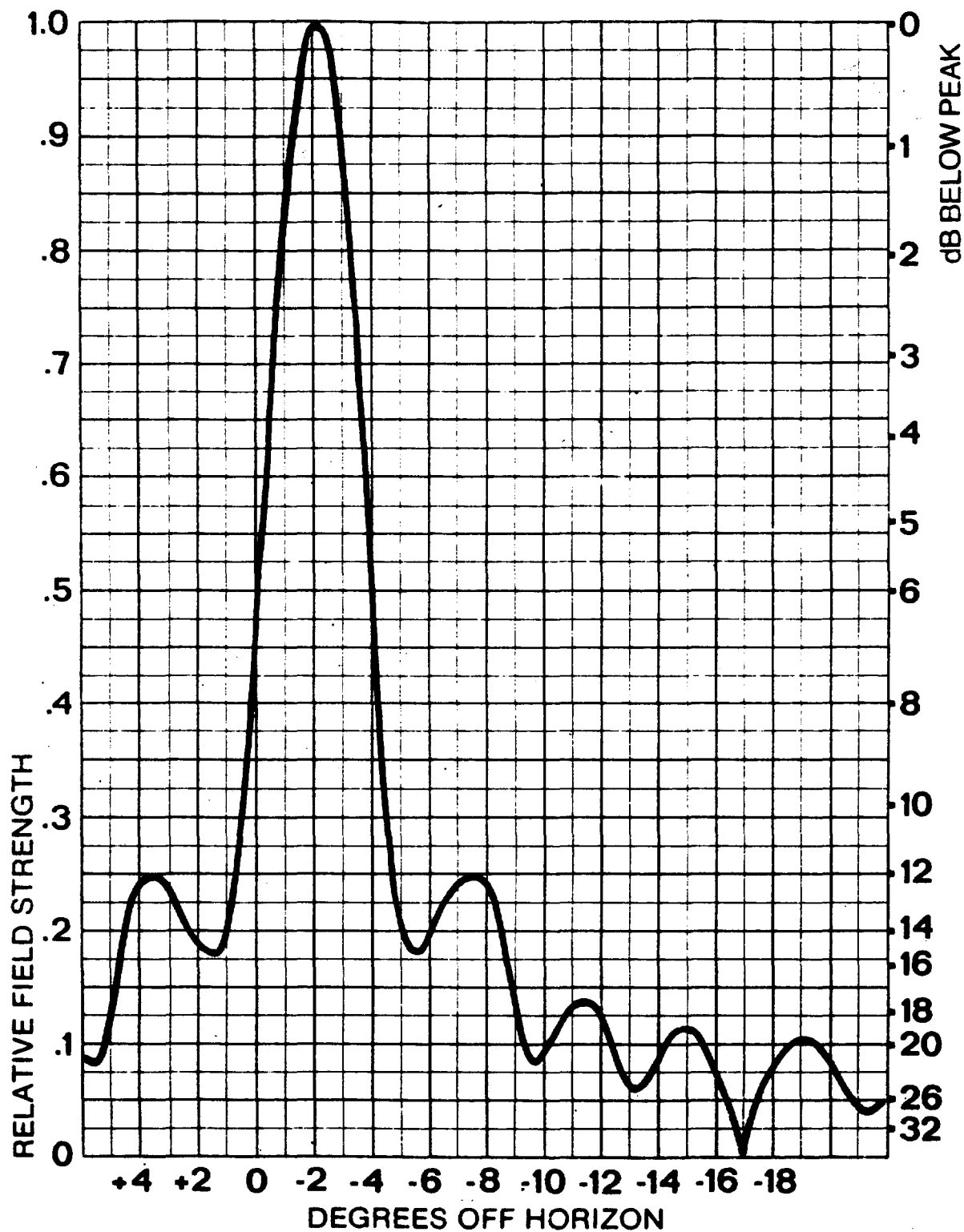
Main Lobe  
oriented at N-290-E



Bogner Broadcast Equipment Corp.  
Westbury, N.Y. 11590

**Figure 5**  
Horizontal Plot of  
Relative Field from B16UC Ant  
Oriented at N-290-E  
Channel 56  
Raystay Company  
Red Lion, Pennsylvania

R. L. HOOVER  
CONSULTING  
TELECOMMUNICATIONS ENGINEER



Bogner Broadcast Equipment Corp.  
Westbury, N.Y. 11590

**Figure 6**  
Vertical Shape Factor  
for B16UC Antenna  
with -2° Depression Angle

Channel 56  
Raystay Company  
Red Lion, Pennsylvania

R. L. HOOVER  
CONSULTING  
TELECOMMUNICATIONS ENGINEER



A-6-27  
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LAW OFFICES  
COHEN AND BERFIELD, P.C.

LEWIS I. COHEN  
MORTON L. BERFIELD  
ROY W. BOYCE  
JOHN J. SCHAUBLE\*

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1129 20TH STREET, N.W.  
WASHINGTON, D.C. 20036  
(202) 466-8565

TELECOPIER  
(202) 785-0934

\*VIRGINIA BAR ONLY

March 9, 1989

HAND DELIVERED

Federal Communications Commission  
Low Power Television Window Filing  
Strip Commerce Center  
28th and Liberty Avenue  
Pittsburgh, PA 15222

Dear Gentlemen:

On behalf of Raystay Company, there is submitted herewith on FCC Form 346 an original and two copies of an application for a new low power television station to operate on Channel 23 at Lancaster, PA.

A check in the amount of \$375 for the filing fee is attached hereto.

Should there be any questions concerning this matter, kindly communicate directly with this office.

Very truly yours,

  
Morton L. Berfield

Enclosures